GRAVITY ACTUATED COLLAPSIBLE GARMENT HANGER

BACKGROUND

Technical Field:

The present invention is generally related to the field of garment hangers, and specifically to a two-piece slidably collapsible garment hanger.

Background Art:

Garments are sometimes overly stretched and/or damaged when being removed from or placed on rigid hangers in the conventional manner. In addition, the convenience of removing the hanger is impeded by its rigidity.

The stretching of a garment usually occurs because the distance between the hanger arms is greater than the opening of the neck of the garment. To prevent damage to some types of clothing, hangers have to be removed from the garment by manipulating the hanger down through the bottom of the garment. This is not only a cumbersome operation that must be done more by feel than sight, but the hook element may damage the garment during this process. Furthermore, if the garment is a button type, the necessary number of buttons must be undone before removal.

Because of the small necks of some garments, garment hanger manufacturers have attempted to compensate for this problem by making collapsible garment hangers that remedy some of the deficiencies of rigid hangers. In one such class of devices, a central hook element attaches to two sliding arms. These designs allows the two arms to collapse toward the hook element for easier insertion into the neck of a hanger, and, once inserted, the arms slide out to their fully extensible position to hold the garment in place. However, these types of designs do not address adequately the main problem they seek to resolve, as they are often still to large to fit directly into small-necked garments even in their collapsed position. This problem is a function of the need for a sizable central element that is capable of holding both of the sliding arms in place while extended.

In another class of collapsible garment hanger devices, the hangers have two arms that fold downward after releasing a locking member. However, these variants often have manually activated locking devices that require a second hand to release. These designs also often use spring-loaded locking mechanisms and as such suffer from the difficulty of matching the proper spring force to variable garment weights in order to maintain a proper hanging or shoulder angle. Much like the previously described hanger class, these designs also often fail to collapse enough to fit in small-necked garments. This is the result of the fact that in their collapsed position their minimum width is a function

of not only the horizontal width of the central element but the width of the folded hanger arms.

In another existing class of collapsible garment hanger devices, the hangers have molded hinges and a device for locking the movable arms in an up position. However, as in the previous mentioned folding designs, this type of hanger often does not collapse enough to fit small-necked garments easily, such as turtlenecks.

Yet another existing collapsible hanger device uses a swinging arm design. This variant consists of two arms that are attached to the hook element in such a manner that they collapse by swinging together to form one arm with an asymmetrically located hook. This design allows for easy insertion of the hanger into the neck of even the smallest necked garment. However, as this device too uses a spring-loaded swinging mechanism, it suffers from the varying garment weight problem that similar other spring-loaded devices have. However, rather than matching the proper spring force to hold up the garment once inserted, the device must match the spring force with that needed to push out and collapse the arms after insertion and before removal.

SUMMARY

The present invention is directed towards a garment hanger that allows the arms of the hanger to be collapsed. This permits garments such as shirts,

blouses and dresses, especially small-necked garments, to be removed from and placed onto the hanger with relative ease and without stretch or hook damage.

In general, the collapsible garment hanger comprises a fixed arm with a hook element attached and a sliding arm. Either arm may also contain a longitudinally oriented slot. The sliding arm is connected to the fixed arm by way of the slot in such a manner that when the tip of the fixed arm is tilted upward, gravity will cause the sliding arm to slide into its extended position. Conversely, whenever the tip of the fixed arm tilts downward, gravity will cause the sliding arm to slide into its collapsed position. Though this hanger design allows an operator to extend and collapse the hanger with one hand using gravity, a user can also manually extend or collapse the hanger with two hands. As this hanger is asymmetric in its collapsed position, in so far as the hook element is attached in-line to the tip of the fixed arm, the hanger can be easily inserted into the neck of a small-necked garment. This is possible as, in order to fit over the collapsed hanger, the neck of the garment must only be as wide as the offset spacing created between the outer tip of the sliding arm when it is in the collapsed position and the opposing offset portion of the hanger.

The hanger may further comprise a crosspiece that extends through the aforementioned slot and attaches the sliding arm to the fixed arm. In one version of the collapsible garment hanger, the crosspiece consists of a guide bar. This variant consists of a fixed arm with a hook element attached, a sliding arm with a

longitudinally oriented slot and a guide bar extending through the slot and attaching the sliding arm slidably to the fixed arm. This version further comprises a stop point at the tip of the sliding arm that stops the movement of the sliding arm towards the distal end of the fixed arm. When this version is collapsed, the small opposing offset spacing created between the outer tip of the sliding arm and the opposing offset portion of the hanger permits small-necked garments to fit over the collapsed hanger without being stretched. This offset point can be much smaller than the width of other collapsible hangers that use a two arm sliding design or a folding arm design.

This version of the hanger also has additional features that can be seen in most all variants of this hanger design. One such feature is the grasping point on the hook element. The grasping point allows for a firm grip on the hanger without the palm of the hand extending too low and interfering with the fabric of the garment. Another feature consists of holes in the fixed arm that serve to balance the weight of the sliding arm in its extended position. A further benefit of the way the hanger balances is the fact that, in the collapsed position, an empty hanger presents a visible telltale signature in an otherwise full garment rack that allows one to easily pick it out. When the hanger is empty and in the collapsed position in a closet or on a clothes rack, it can hang with the tip of the fixed part extended slightly above the level of any filled hangers. This makes empty hangers clearly visible and accessible to a user, acting as a flag to signify that the hanger is empty and available for use.

The movement of this hanger is made possible by the use of an assembly of dowels and a spacer. The sliding arm can extend and collapse because the assembly holds the sliding arm in place between the guide bar and the fixed arm. This dowel and spacer assembly retains a small spacing between the sides of the sliding arm and the fixed arm to permit movement of the sliding arm and hold the sliding arm at an angle determined by the slot shape.

A variant on this design can have a releasable guide bar that connects to the fixed arm through multiple holes in the fixed arm as well as a slot that is enlarged at the point furthest from the stop point. Both these features allow a user to change the hanging angle and shoulder length of the hanger. The releasable guide bar works by modifying the length to which the sliding arm can extend. If the guide bar is attached to a point nearer to the fixed arm's tip, the sliding arms extensible length will be shortened. While this will shorten the shoulder length of the hanger when it is in its fully extended position, it will not change the size of the offset spacing that determines the garment neck size through which the hanger will fit. Conversely, attaching the guide bar to a point further from the distal end of the fixed arm will lengthen the maximum shoulder length of the hanger. The enlarged slot on the other hand changes not the shoulder length but rather the hanging angle of the hanger. By enlarging the slot size nearest the distal end of the fixed arm the angle the sliding arm hangs at in its fully extended position will increase. This is because when gravity pulls at the

tip of the sliding arm, it will hang downward until its distal end meet up with the top of the slot. The more the slot is enlarged, the greater the shoulder angle will be. Both of these features allow the hanger to work effectively with a greater variety of garments, such as those with differing sizes, weights, weaves and fabrics.

Yet another version of this hanger comprises a fixed arm with a hook element attached, a sliding arm with a longitudinally oriented slot, a crosspiece extending through the slot and attaching the sliding arm slidably to the fixed arm, and a sloped upper edge of the sliding arm. In this version, as before, whenever the distal end of the fixed arm tilts upward, gravity will cause the sliding arm to slide along the fixed arm away from the distal end of the fixed arm. Conversely, whenever the distal end of the fixed arm tilts downward, gravity will cause the sliding arm to slide along the fixed arm toward the distal end of the fixed arm. Additionally, the sliding arm in this version can be manually drawn away from or towards the distal end of the fixed arm.

This version also enjoys the main benefit of this design, namely the small offset spacing created between the outer tip of the sliding arm when it is in the collapsed position and the opposing offset portion of the hanger. This offset spacing determines the garment neck size through which the hanger will fit. Furthermore, this version may contain the additional elements seen in earlier described designs. These include the grasping point on the hook element, and

the stop point at the tip of the sliding arm that stops the movement of the sliding arm towards the distal end of the fixed arm.

The crosspiece is either a guide bar that attaches the sliding arm slidably to the fixed arm or a cam shaped guide pin that is releasably connected to a mating hole in the fixed arm through the sliding arm slot. The cam shaped guide pin serves as a means to raise or lower the sliding arm relative to the fixed arm. This permits a user to adjust the angle of the sloped edge of the sliding arm and thereby change the shoulder angle of the hanger. Other elements in this design include balancing holes in the fixed arm, a lower section of the sliding arm that extends beyond the width of the sliding arm and detents at both ends of the slot. The latter two elements serve to keep the garment from catching on the sliding arm and stop the movement of the sliding arm respectively.

Yet another version of the collapsible garment hanger includes a fixed arm with a hook element attached, a sliding arm, and two longitudinally oriented slots, one in the fixed arm and one in the sliding arm. It also consists of a sloped upper edge on the sliding arm, a guide pin hole and a crosspiece slidably attaching the fixed arm to the sliding arm through the guide pin hole and the fixed arm slot. Further features include socket holes in the fixed arm behind the slot in the sliding arm and rivet shaped pins that pass through the sliding arm and snap onto the fixed arm through the socket holes. Whenever the distal end of the fixed arm of this hanger tilts upward, gravity will cause the sliding arm to slide along

the fixed arm away from the distal end of the fixed arm. Conversely, whenever the distal end of said fixed arm tilts downward, gravity will cause said sliding arm to slide along the fixed arm toward the distal end of the fixed arm. Additionally, the sliding arm can be drawn manually away from or towards the distal end of the fixed arm. This version also enjoys the main benefit of this design, namely the small offset spacing created between the outer tip of the sliding arm when it is in the collapsed position and the opposing offset portion of the hanger. This offset spacing determines the garment neck size through which the hanger will fit.

Further important elements in this version of the collapsible hanger include a grasping point on the hook element and a sloped upper edge of the fixed arm that stops the movement of the sliding arm. Also included are detents at both ends of the slots in the fixed and sliding arms, balancing holes in the fixed arm, and a lower section of the sliding arm that extends beyond the width of the sliding arm. These three latter elements all serve the same purposes as their counterparts in earlier described variants of this collapsible hanger.

The last described variant of this collapsible garment hanger includes a fixed arm with a hook element attached, and a sliding arm slidably disposed within the fixed arm. In this version, as before, whenever the distal end of the fixed arm tilts upward, gravity will cause the sliding arm to slide along the fixed arm away from the distal end of the fixed arm. Conversely, whenever the distal end of the fixed arm tilts downward, gravity will cause the sliding arm to slide

along the fixed arm toward the distal end of the fixed arm. Additionally, the sliding arm in this version can manually slide away from or towards the distal end of the fixed arm. This version also possesses the main benefit of this design, namely the small offset spacing created between the outer tip of the sliding arm when it is in the collapsed position and the opposing offset portion of the hanger. This offset spacing determines the garment neck size through which the hanger will fit.

Other elements in this hanger may include a grasping point on the hook element, at least one contact point on the upper side of the sliding arm and a mating point on the upper side of the fixed arm. The contact points permit the sliding arm to slide away from the distal end of the fixed arm until they mate with their mating points and stops the movement of the sliding arm. There is additionally at least one contact point on the lower side of the fixed arm and a mating point on the upper side of the sliding arm such that the sliding arm can slide away from the distal end of the fixed arm until the contact point mates with the mating point and stops its movement.

Furthermore, there is a stop point on the lower end of the sliding arm that rests against the lower portion of the fixed arm when the sliding arm is in the collapsed position. An end point on the distal end of the fixed arm also stops this same movement. A stop latch on the upper side of the fixed arm and a contact point on the upper side of the sliding arm also may exist such that the sliding arm

can slide away from the distal end of the fixed arm until the contact point mates with the stop latch and stops its movement.

The various versions of the present gravity actuated collapsible garment hanger can be made of any appropriate material and can be an assembly of numerous individual parts if desired. However it is preferred that the arms of the hanger be of at most two pieces of material such as two molded plastic structures.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is generally related to garment hangers, and more specifically collapsible garment hangers. The following description, taken in conjunction with the referenced drawings, is presented to enable one of ordinary skill in the art to make and use the invention and to incorporate it in the context of particular applications. Various modifications, as well as a variety of uses in different applications, will be readily apparent to those skilled in the art, and the general principles defined herein may be applied to a wide range of embodiments. Thus, the present invention is not intended to be limited to the embodiments presented, but is to be accorded the widest scope consistent with the principles and novel features disclosed herein. Furthermore it should be noted that unless explicitly stated otherwise, the figures included herein are illustrated diagrammatically and without any specific scale, as they are provided as qualitative illustrations of the concept of the present invention.

A collapsible garment hanger according to the present invention includes a hook attached to a fixed arm, a sliding arm attached to the fixed arm by way of a guide bar, mating slots and/or guide pins, and sometimes a snap latch. The moving arm can be made to retract along or into the fixed arm either manually or through gravity by raising the end with the moving arm upward allowing the force of gravity to slide the moving arm towards the distal end of the fixed arm. After being inserted into the neck of a typical garment the moving arm can then be made to extend by tilting the hanger downward and allowing gravity to slide the moving arm into the extended position or by manually moving it into place. Once extended, the weight of the garment will provide sufficient friction to keep the moving arm in place.

In one embodiment of the collapsible garment hanger according to the present invention, arched arms are employed as shown in **Fig. 1A**, where a side view of the garment hanger in its retracted position is presented. The hanger consists of a hook element **101** and two arched arms, specifically a hollow fixed arm **105** and sliding arm **107**. The hook element **101** is attached to the fixed arm **105** to provide support for the garment hanger when hanging on a clothes rod. This hook element **101** is located asymmetrically on the fixed arm **105** so its support is contiguous with it, but with an offset spacing **109**. The hook element typically resembles the hook portion of any standard clothes hanger. However, it may be made to resemble the hook portion of more specialized garment

hangers, such as those designed to hang clothes from non-standard clothes rods which are typically smaller in diameter than standard rods. Additionally, the hook element **101** may contain a grasping point **103** on either side of the hook element **101**. A stop latch **119** may also be attached to the fixed arm **105** at the anterior end of the hook element **101**. Additionally, the fixed arm **105** has a stop **115** attached to the distal end of the arm relative to the hook element **101**, and a contact point **121** in its lower proximate end. The sliding arm **107** fits within the hollow fixed arm **105** such that it can slide back and forth within the fixed arm **105**. The sliding arm **107** contains a minimum number of loosely fitting contact points including an upper contact point **111** and a lower contact point **113** that are disposed along the top and bottom of the sliding arm **107**. These contact points act as stops when they mate with points along the inside portion of the fixed arm **105** as well as the stop latch **119**. Additionally, the sliding arm **107** contains another contact point **117** located on the bottom which rests against the lower portion of the fixed arm **105** when the sliding arm **107** is in the retracted position.

The hook element **101** is located asymmetrically on the upper part of the fixed arm **105** such that it is contiguous with the fixed arm **105** but has a small offset spacing **109**. This offset spacing **109** provides a minimum spacing between the outer tip of the sliding arm **107** and the opposing offset portion of the hanger when the sliding arm **107** is retracted. This allows for easy insertion or removal of the hanger from the neck of a garment as the small offset spacing **109**

will allow the neck line of a garment to easily pass over the fixed arm **105** when the sliding arm **107** is in the retracted position. The grasping point **103** is an embossed region of the lower hook section. The grasping point **103** shown in **Fig. 1A** is a raised ring or ridge on either side of the hook element **101** and is of a similar nature to ridges that might be used to stiffen the hook along its edges. The position of the grasping point **103** on the hanger allows for a firm grip on the hanger without resulting in the palm of the hand extending too low and interfering with the fabric of the garment.

Additionally, the stop latch **119** may be utilized to stop the movement of the sliding arm **107**. In one embodiment, as shown in **Fig. 1A**, a stop latch **119** is made smooth relative to the top exposed surface of the hanger. This permits movement of the sliding arm **107** between stops but when the upper contact point **111** reaches the proximate end of the fixed arm **105** it engages with the stop latch **119** to prevent further movement.

Additionally, lower contact points **113** on the sliding arm **107** can be made to mate with contact points **121** on the fixed arm when the fixed arm **105** is fully extended. The stop latch and/or contact points constrain the motion of the sliding arm **107** to the desired range. Once the hanger has been inserted into a garment with its sliding arm **107** in the fully extended position, the weight of the garment will provide sufficient friction to keep the sliding arm **107** in place.

In one embodiment of the above described hanger the curved arms would permit gravity to slide the sliding arm **107** towards the distal end of the fixed arm **105** when the fixed arm **105** is tilted downward relative to the plane of the hanger. The stop point **115** and/or contact point **117** would constraint this movement, allowing it to retract until the tip of the sliding arm **107** is near the center of the hook element **101**. Alternatively, when distal end of the fixed arm **105** is tilted upward relative to the plane of the hanger, the force of gravity would cause the sliding arm **107** to slide through the fixed arm **105** until it reaches its fully extended position as shown in **Fig. 1B**.

In another embodiment the sliding arm **107** may be manually extended or retracted to collapse or expand the hanger as desired by the user. The stop and/or contact points would act in the same manner a described previously.

In an alternative embodiment of the collapsible garment hanger the fixed arm is attached to the sliding arm which slides along the fixed arm by way of a slot that is in the sliding arm. This sliding arm is attached to the fixed arm through a guide bar that extends through the slot in the sliding arm holding it in place but allowing it to slide back and forth. Referring to **Fig. 2A** where a side view of one embodiment of this type of garment hanger in its extended position is presented, a hook element **201** is located asymmetrically on the upper end of a fixed arm **203** such that it is contiguous with the fixed arm **203**. A sliding arm **205** is attached to the fixed arm **203** by means of a guide bar **209**. The guide bar **209**

extends through a slot **207** made horizontally down the center of the sliding arm **205**. In this manner, the sliding arm **205** can be made to extend and retract relative to the fixed arm **203** either through the force of gravity by tilting the distal end of the fixed arm **203** upwards or downwards, respectively, or by manually moving the sliding arm **205** in or out.

In addition, a raised section **215** of the sliding arm **205** creates a stop point **211** at the tip of the sliding arm **205** and extends along the upper portion of the sliding arm **205** towards the distal end of the fixed arm **203**. When the sliding arm **205** is in the collapsed position the stop point **211** rests against the guide bar **209** and stops the movement of the sliding arm **205**. Holes **213** in the fixed arm **203** serve to balance the weight of the hanger when the sliding arm **205** is extended to hang the garment evenly. **Fig. 2B** shows this embodiment in the collapsed position.

In a variation of the collapsible garment hanger described in connection with **Figs. 2A** and **2B**, the slot in the sliding arm is enlarged at one end thereby allowing for an increase in the shoulder angle of the hanger when it is in its extended position. This increased shoulder angle will add gravitational stability to the hanger in the extended position to counter the forces from the garment that might otherwise cause the hanger slide to retract. Referring to **Fig. 3A** and **Fig. 3B**, these figures show side views of a collapsible hanger of a type described in reference to **Figs. 2A** and **2B**, shown in an extended and collapsed position,

respectively. This embodiment, however, as is apparent in **Fig. 3B**, consist of a slot **307** on the sliding arm **305** that is enlarged at the point furthest from the stop point **311**. Thus when the sliding arm **305** is extended, the force of gravity will pull the sliding arm **305** down until the guide bar contacts with the enlarged corner of the slot **307**. This allows the shoulder angle of the hanger to be greater that it would be otherwise when the sliding arm **305** is extended.

Another feature of the collapsible garment hanger represented by **Figs. 3A**, **3B**, **3C** and **3D** is that the guide bar can be made removable. This allows the guide bar to be installed into various optional holes in the fixed arm in order to alter the shoulder angle and width of the hanger according to the desire of the user. The closer the hole used to attach the guide bar is to the distal end of the fixed arm, the smaller the shoulder angle and width will be when the sliding arm is in the fully extended position. Referring to **Fig. 3A**, **3B** and **3D** the guide bar is attached to the fixed arm **303** through the sliding arm **305** by means of a removable screw **317**. The guide bar **309** is also attached to the spacer **321** through dowels **319**. The dowel **319** and spacer **321** hold the sliding arm **305** in place at an angle determined by the slot shape. Additionally, the spacer **321** retains a small spacing between the sides of the sliding arm **305** and the fixed arm **303** so as to permit free movement of the sliding arm **305**. As can be seen in **Fig. 3C**, the guide bar can be removed and reattached to the fixed arm **303** by inserting the removable screw **317** through the sliding arm **305** into one of

various holes **318** in the fixed arm **303.** This changes the shoulder angle and width of the hanger when it is in the fully extended position.

In another version of the collapsible garment hanger, two molded pieces, the fixed arm and the sliding arm, snap together to form a low cost embodiment of the hanger that allows for variable shoulder angles with a straight line slot. Referring to **Fig. 4A** where the side view of the this embodiment in its expanded position is presented, a hook element **401** is molded asymmetrically to the upper end of a fixed arm **403** such that it is contiguous with the fixed arm **403** in the same manner described previously for other embodiments of the present invention. The sliding arm **405**, which is molded separately from the fixed arm **403**, is attached to the fixed arm **403** by snapping the slot **407** onto the guide bar **409** during assembly. The guide bar **409** thus extends through the slot **407** and holds the sliding arm **405** in place while permitting it to move horizontally. The open section **411** of the fixed arm **403** serves to balance the weight of the hanger when the arm is extended to ensure the garment hangs evenly.

This embodiment works much the same way as the previous described versions. Specifically, the moving arm **405** can be made to retract into the fixed arm **403** manually or through gravity by raising the end with the moving arm **405** upward allowing the force of gravity to slide the moving arm **405** towards the distal end of the fixed arm **403.** After being inserted in its retracted position into the neck of a typical garment the moving arm **405** can then be made to extend by

tilting the hanger downward and allowing gravity to slide the sliding arm **405** into the extended position or by manually moving it into place. However, in this embodiment the upper edge of the sliding arm **405** is a molded sloped edge that creates a shoulder angle without the need for an asymmetrically enlarged slot to change the shoulder angle of the hanger.

Alternatively, this embodiment can utilize a removable offset cam shaped guide pin rather than a fixed guide bar, thereby enabling an adjustable shoulder angle. In this embodiment a cam shaped guide pin **600**, as shown in **Fig. 6**, is used as a separate snap-on pin, rather than a molded part of the fixed arm **403**. The guide pin **600** consists of a seating shaft **601** attached to a cam **603** which is attached off center to the central part of the pin **605**. On the other end of the pin is a flat thumb hold **609** attached to the top of the center of the pin **607**.

In this embodiment the guide pin is seated by passing the seating shaft through the slot in the sliding arm **407** and then through a mating hole (not shown) in the fixed arm **403**. The central part of the pin **605** is thus situated inside the slot **407** in the sliding arm **405**. Once situated, by grasping the thumb hold **609** and rotating the guide pin, the cam would cause the central part of the pin **605** to rotate and raise or lower the sliding arm thereby changing the shoulder angle of the hanger to fit varying garment sizes. This embodiment would still permit the sliding arm **407** to expand and retract along the fixed arm **403** in the same manner described above.

In another embodiment of the collapsible garment hanger rivet shaped pins can be set in socket holes in the fixed arm of the hanger. This would allow a user to incrementally change the shoulder angle and extension length by preventing movement of the sliding arm at varying points along the fixed arm. Referring to **Fig. 5** where a perspective view of this embodiment is shown in the retracted position, a hook element **501** with a grasping point **503** is located asymmetrically on the upper end of a fixed arm **505** such that it is contiguous with the fixed arm **505**. A sliding arm **507** is attached to the fixed arm **505** by means of a guide pin **519** that passes through the top corner of the sliding arm **507** and snaps to the upper slot **521** located on the fixed arm **505**. The guide pin, while attaching the sliding arm **507** to the fixed arm **505**, would permit the sliding arm **507** to move along the length of the upper slot **521** manually or through the force of gravity as described above. Additionally a lower slot **509** is in the sliding arm **507** and socket holes (not shown) are in the fixed arm **505** directly behind the lower slot **509**. This construction would permit rivet shaped pins **511** to pass through the sliding arm **507** and snap onto the fixed arm **505** through the socket holes. In this manner the sliding arm **507** will slide along the fixed arm **505** manually or through the force of gravity but its forward movement would be stopped when the distal end of the sliding arm **507** slides against a rivet shaped pins set in a socket hole **511**. This construction allows a user to set a desired shoulder angles or extension length by inserting a pin into the appropriate socket hole **511**. If a pin is inserted into a socket hole on the fixed

arm **505** at a point closest to the hook **501**, the sliding arm **507** can be made to slide the full length of the fixed arm **505** and will create the maximum extension length of the hanger needed for larger garments. The placement of the pin in this position will also create the smallest shoulder angle possible for this hanger. If, however, the pin is inserted into a socket hole furthest from the hook **501**, then the shoulder angle created with the sliding arm **507** in its fully extended position will be increased and the extension length of the hanger will be reduced.

It is an alternate embodiment that the fixed and sliding arms **505** and **507** be molded contiguously with the pins **519** and **511** such that pin **519** can be first assembled into slot **521** by rotating sliding arm **507** 90° with respect to fixed arm **505**. Then pins **511** are snapped through the opening **523** in two steps, when the pins **511** and opening **523** are sequentially aligned. Once assembled, the hanger of **Fig. 5** is stable.

It should be noted that the embodiments described below represent alternative embodiments described herein, and that any or all of these alternate embodiments, may be used in combination with other alternative embodiments that are described throughout this document.

In one alternative embodiment the slots in both the fixed and sliding arms have a detent at an endpoint. Referring to **Fig. 5**, the detents in the slots are shown as small curved portions of the slots located at one end of the lower slot

515, and one end of the upper slot **519**. In this embodiment the detents serve to restrain the sliding arm **507** from moving when it is in its extended position within a garment by acting as a catch that holds onto any guide pin when the hanger is in its extended position.

In another alternative embodiment a molded lower extension is used to support the extended moving arm at the lower left of the fixed arm and to also cover the moving arm to avoid interfering drag from any garment folds of fabric that might be present at that location. As is shown in **Fig 5**, the molded lower extension **517** sits directly below the sliding arm **507** of the hanger and extends slight beyond the width of the sliding arm **507**. The lower extension **517** will therefore hold the garment fabric away from the sliding arm **507** once the hanger is inserted in the garment and therefore prevent the movement of the arm from being slowed or stopped by any of the garment fabric.

In another alternative embodiment holes or open sections are made in the distal end of the fixed arm as well as the sliding arm to balance hanger in extended position. As is shown in **Fig. 5** portions of the distal end of the molded fixed arm have been removed leaving holes **513** in the hanger. Holes **512** are also shown in the same figure in the center of the sliding arm. This allows the hanger to hang garments evenly by balancing the weight of the hanger when it is in the extended position.

The various versions of the present gravity actuated collapsible garment hanger can be made of any appropriate material and can be an assembly of numerous individual parts if desired. However it is preferred that the arms of the hanger be of at most two pieces such as two molded plastic structures.

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